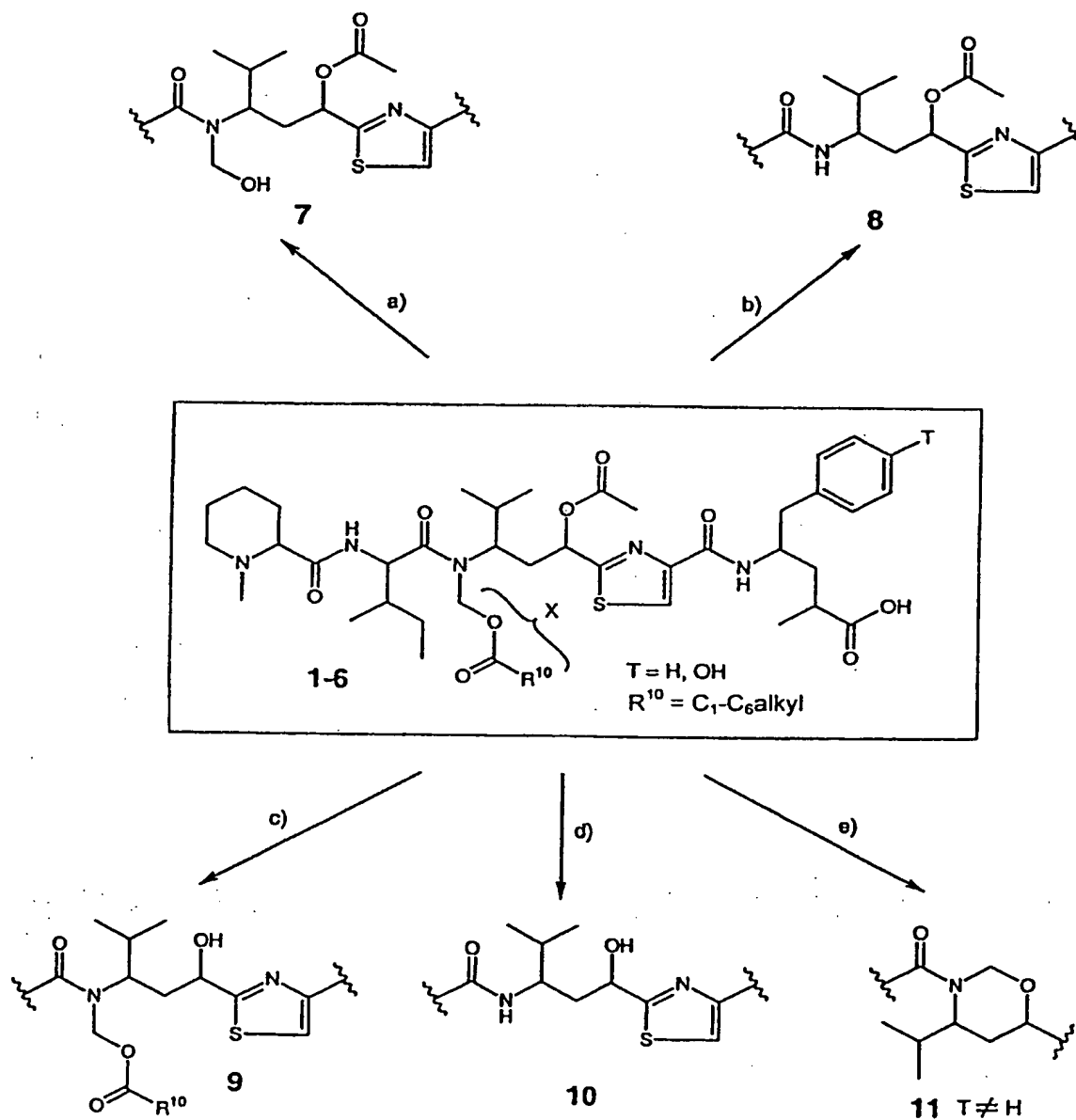


1/9

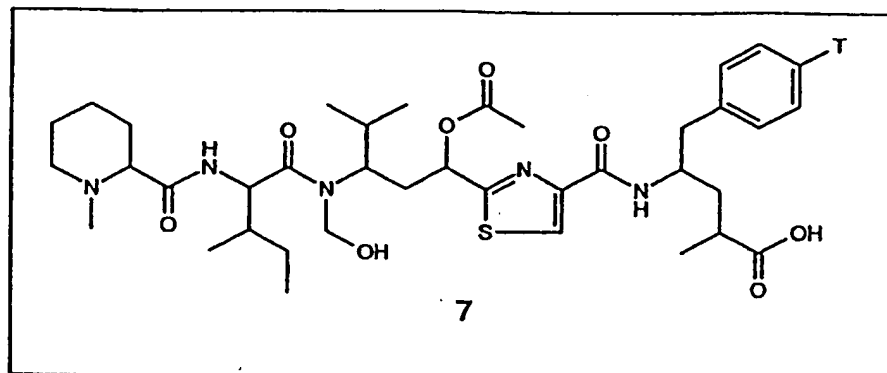
Figure 1



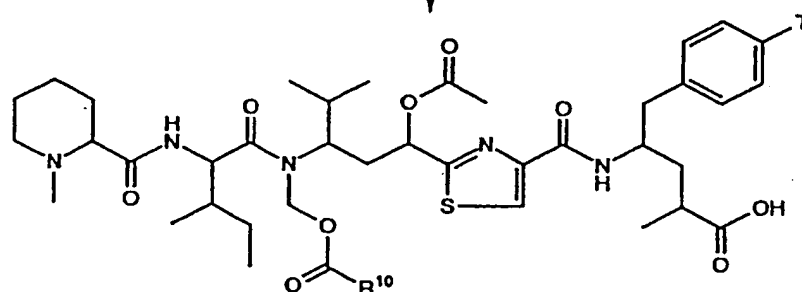
a) 0.1 M HCl, dioxane, 50°C; b) 0.1 M HCl, 100°C; c) NH_3 , MeOH; d) 1 M NaOH, MeOH; e) 0.5 M HCl, 100°C

2/9

Figure 2

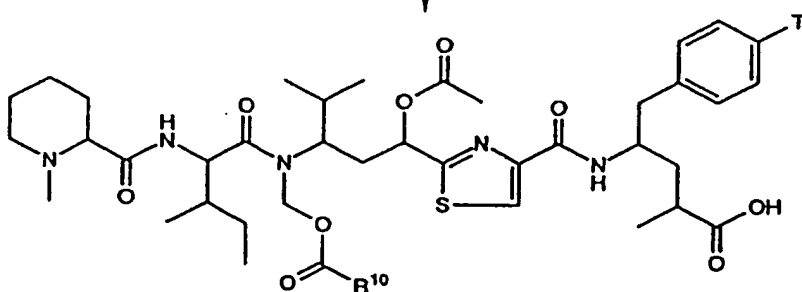


a)



T = H, OCOR⁵
R¹⁰ = C₁-C₆alkyl, C₁-C₆alkenyl, aryl, heteroaryl

b)

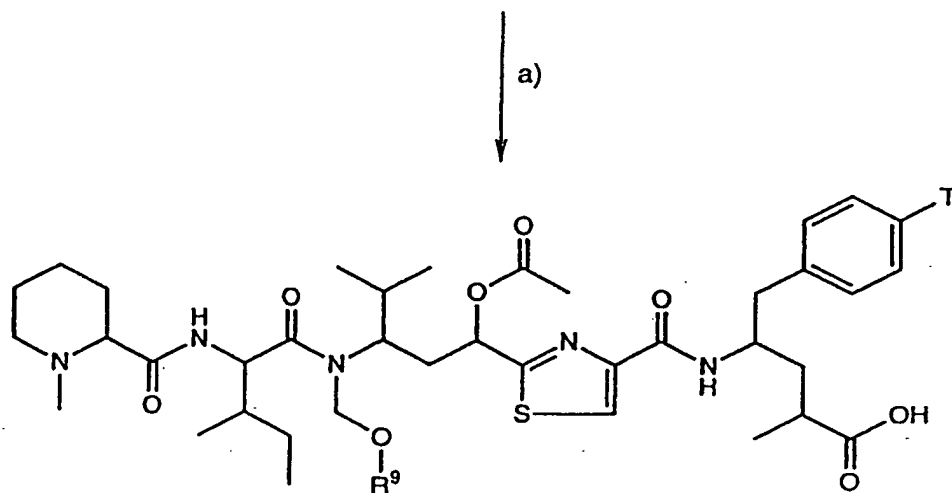
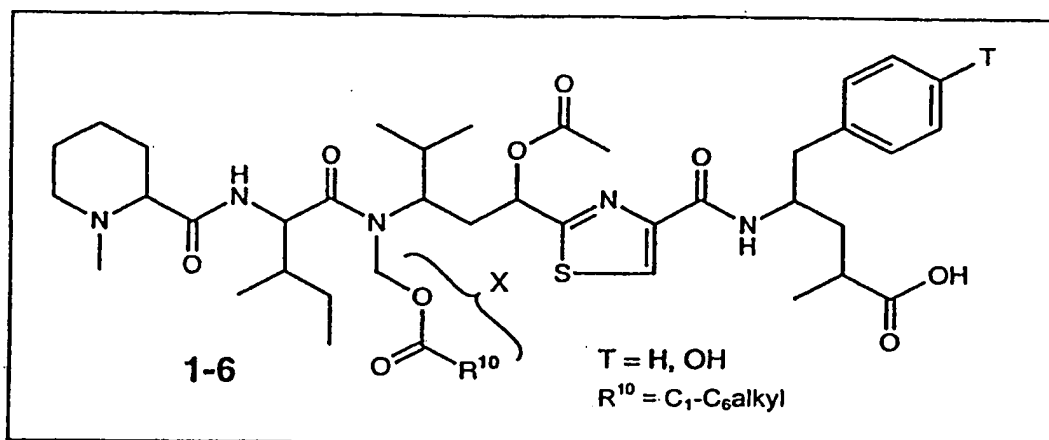


T = H, OH
R¹⁰ = C₁-C₆alkyl, C₁-C₆alkenyl, aryl, heteroaryl

a) R¹⁰COCl, Et₃N; b) NH₃

3/9

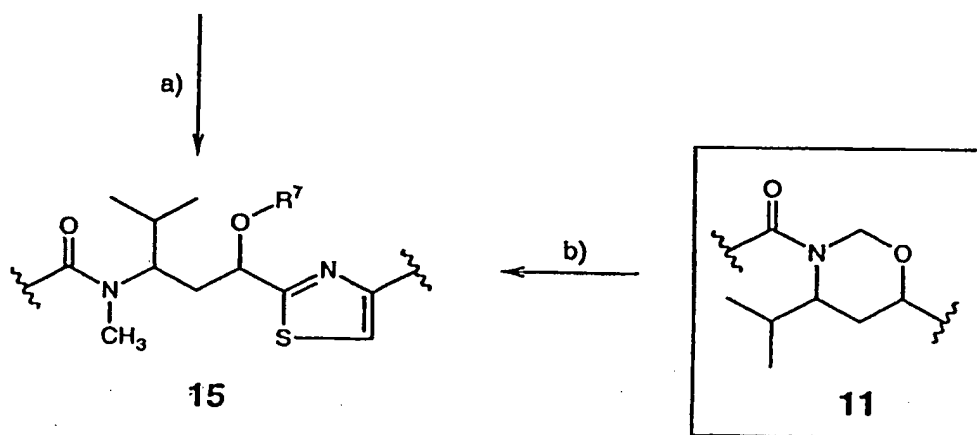
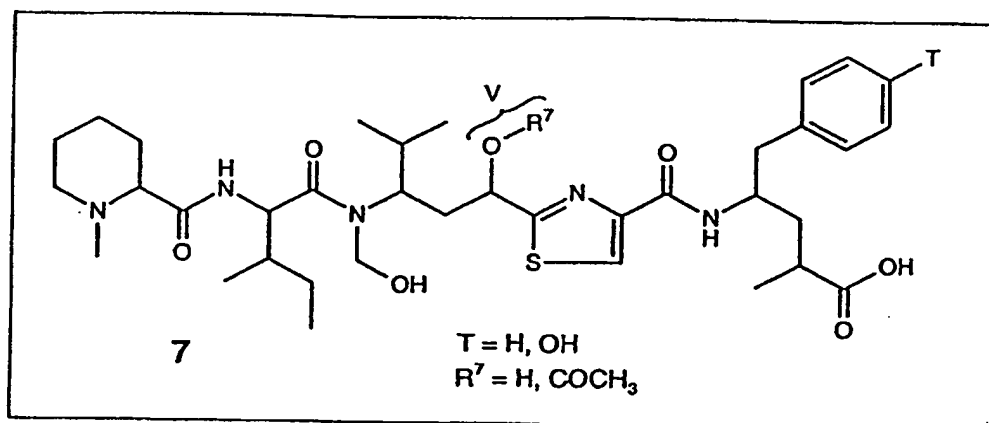
Figure 3



a) *p*-CH₃-C₆H₄SO₂OH, R⁹OH, THF, 80°C

4/9

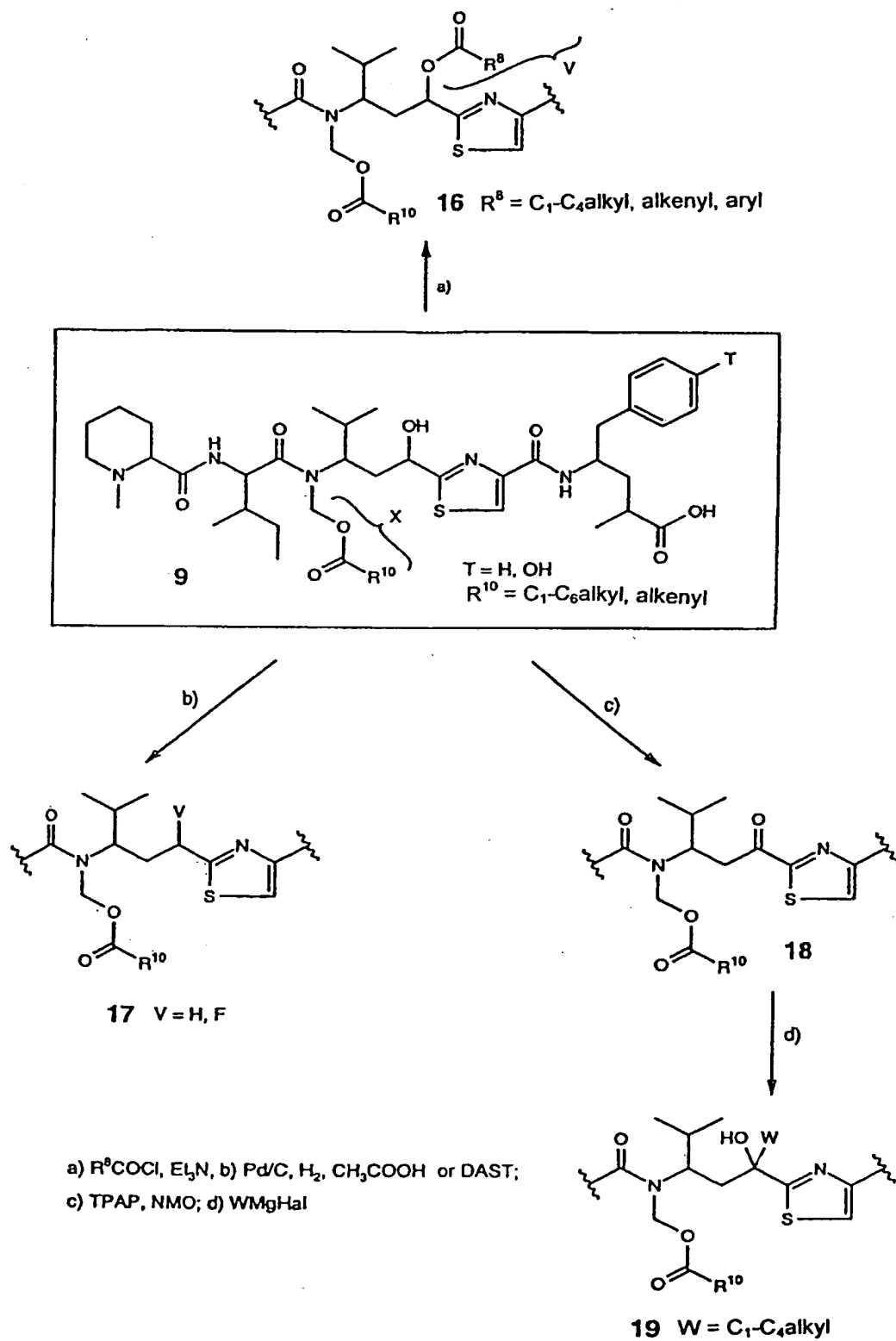
Figure 4



a) NaCNBH₃, TFA, MeOH; b) NaCNBH₃, Me₃SiCl, CH₃CN

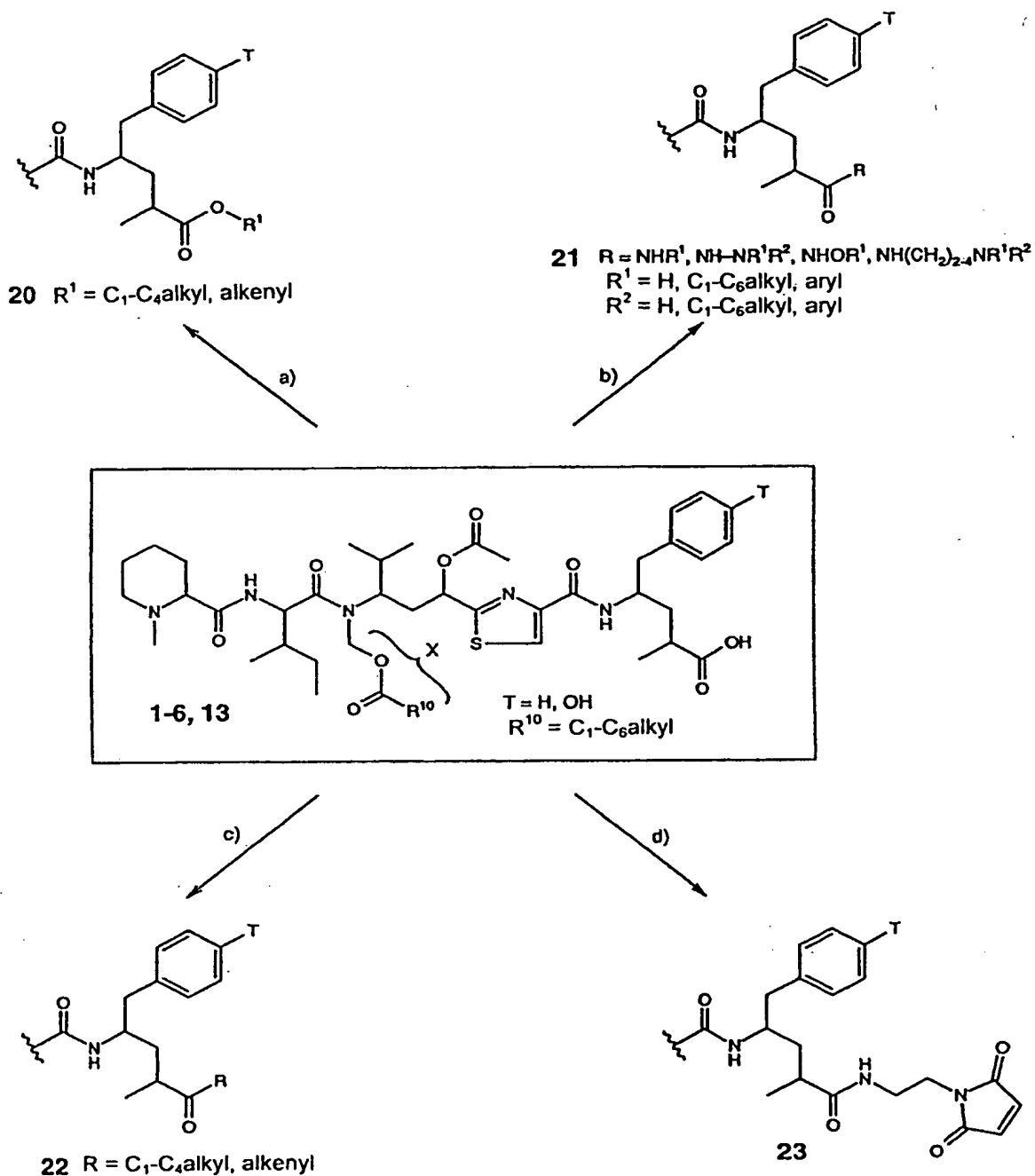
5/9

Figure 5



6/9

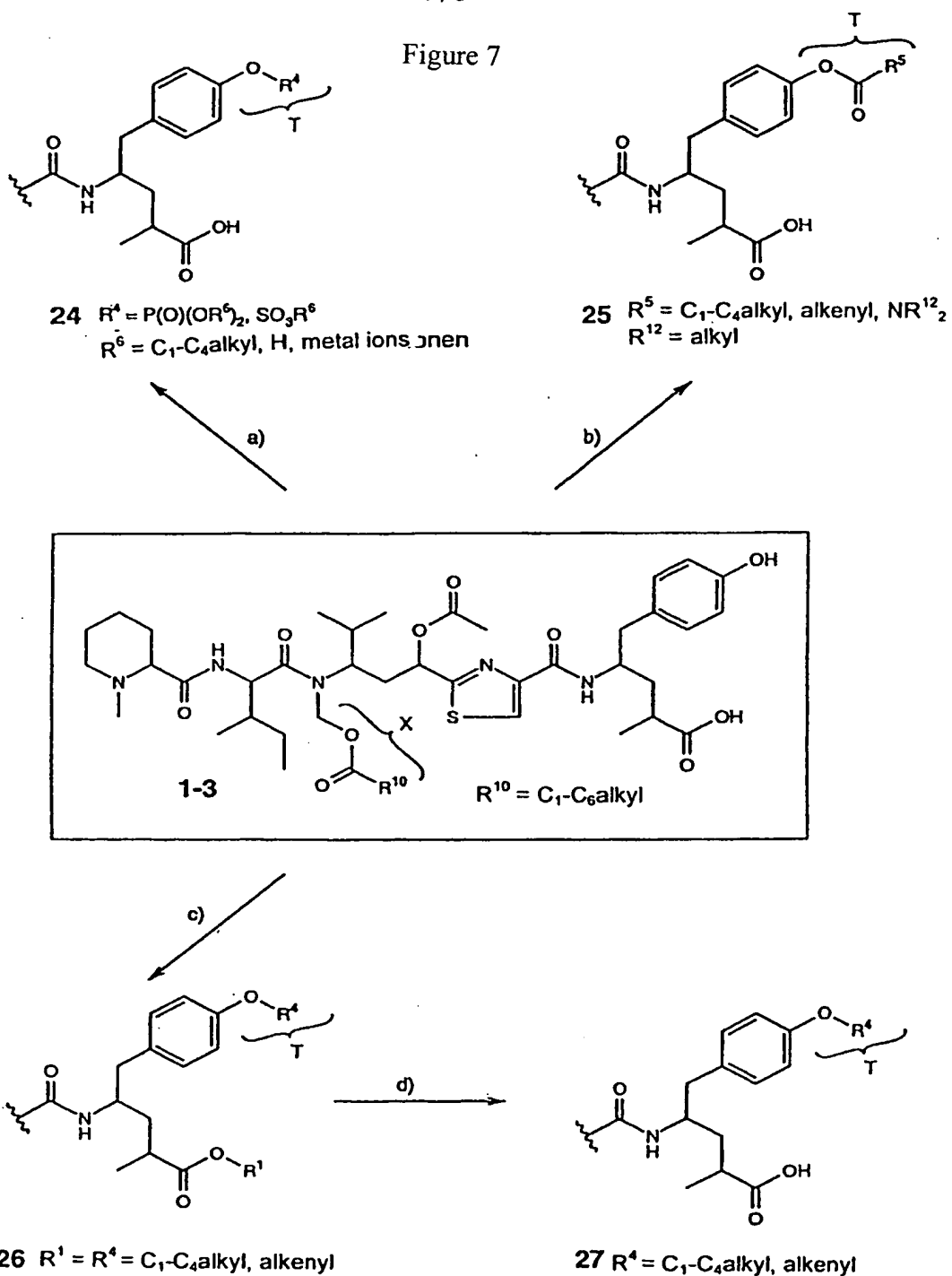
Figure 6



a) EDC, R^1OH , DMAP, CH_2Cl_2 ; b) EDC, RH , CH_2Cl_2 or isobutyl chloroformate, Et_3N , RH , abs. THF
c) RLi ; d) EDC, 1-(2-aminoethyl)-pyrrole-2,5-dione, CH_2Cl_2

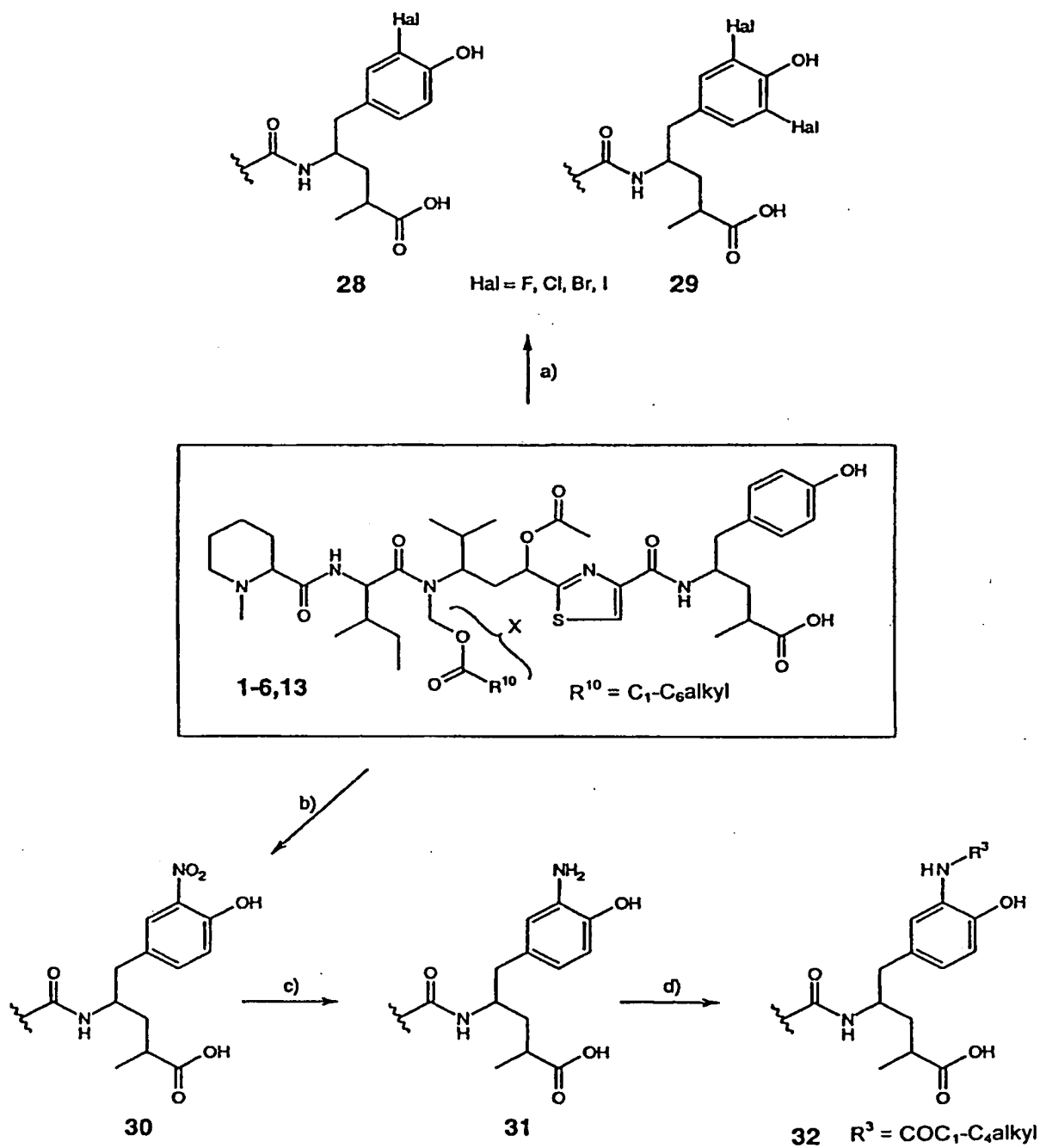
7/9

Figure 7



8/9

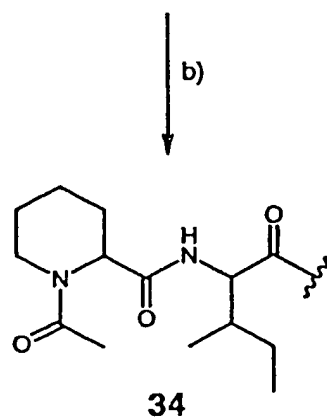
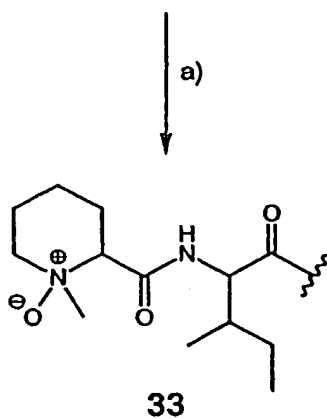
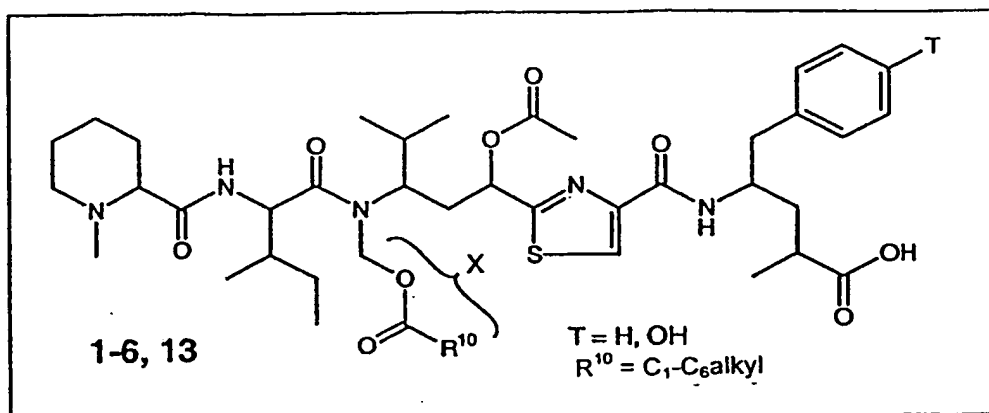
Figure 8



a) C₅Cl₅NF triflate, SO₂Cl₂, NBS, ICl; b) NaNO₂, CH₃COOH, EtOH; c) Pd/C, H₂, EtOH; d) (R³CO)₂O

9/9

Figure 9



a) *m*-CPBA, CH_2Cl_2 ; b) Ac_2O , $75^\circ C$